Mobile WIPP-Certified Standard Waste Box Counter

A self-contained, mobile waste box counter, known as Super-HENC, enables Rocky Flats to package large pieces of equipment in standard waste boxes and assay them on the spot.

Standard Waste Boxes Beneficial to the site

In order to improve safety and reduce costs associated with size-reduction, waste characterization, and material handling, the decontamination and decommissioning (D&D) programs at the Rocky Flats Environmental Technology Site (Site) are adopting the use of standard waste boxes (SWBs) as the primary waste container for disposing of contaminated equipment destined for the Waste Isolation Pilot Plan (WIPP). SWBs can handle larger pieces than 55-gallon drums, thereby minimizing the amount of size-reduction required and reducing the certification costs as fewer containers undergo certification. One SWB can contain the waste of seven 55-gallon drums.

Although WIPP has an existing certification program to assay 55-gallon waste drums, a certification program for SWBs was needed. With co-funding from the Accelerated Site Technology Deployment (ASTD) project, Kaiser-Hill developed a mobile SWB assay system, certified to WIPP waste acceptance criteria, and deployed in support of the Rocky Flats Closure Project.

This project was a multi-site effort, with technical expertise and engineering provided by Los Alamos National Laboratory and Idaho National Engineering and Environmental Lab.

Many large pieces of equipment need to be size-reduced for ultimate shipping and disposal. Trying to size-reduce all of this material so that it can fit into 55-gallon drums is very hazardous, costly, labor-intensive and time-consuming. In addition, the paperwork associated with managing large numbers of containers is significant in terms of time, labor and cost.

Mobile SWB Counter Description

The mobile SWB counter is a self-contained, trailer-mounted system that can be easily transported around the Site and between Department of Energy (DOE) sites. The system is based on passive neutron coincidence detection assay technology, which is similar to the technology that has been successfully used for WIPP-certified drum counters. This technology is expected to provide performance superior to active neutron, differential die-away instruments currently used, because it does not suffer the strong matrix interference effects of the active neutron methods. The system comprises proven crate counter components based on high efficiency neutron counter (HENC) technology. HENC has been re-engineered and integrated with advanced software to accommodate SWB size, varied waste matrices and higher measurement accuracy. This new system is called the "Super-HENC" and uses elements

of the HENC drum counter and other LANL-developed components that are incorporated into existing LANL-built instruments. The Super-HENC provides five times the sensitivity and two times the matrix correction over the HENC.

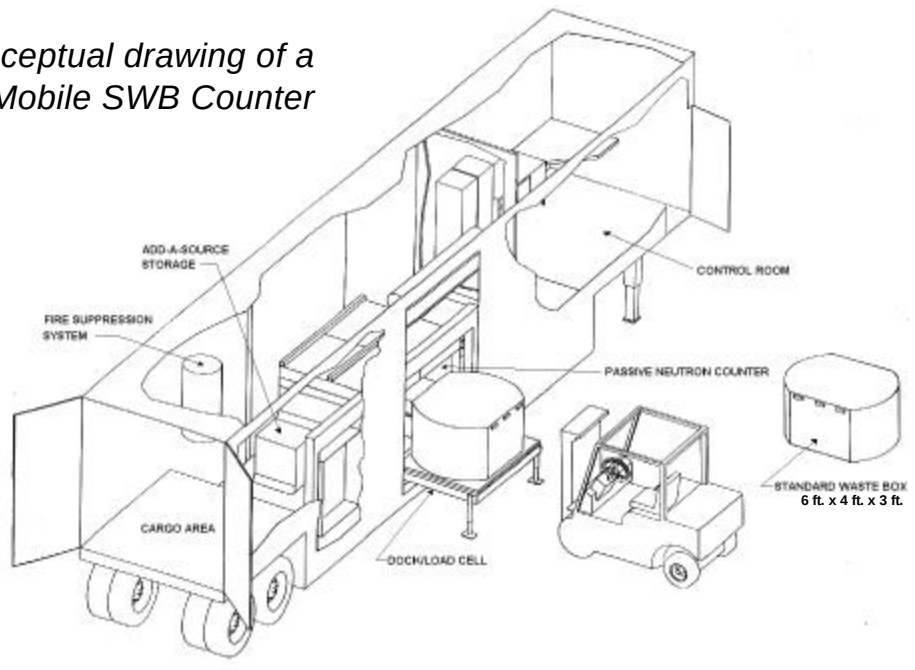
The increase in throughput and sensitivity reduces the programmatic risk of certifying the SWBs for WIPP and meets requirements of the Site's safeguards organization.

Reducing costs and size-reduction requirements

Use of this technology will result in avoiding costs and worker hazards associated with waste handling and packaging. Certification of the Super-HENC to WIPP waste acceptance criteria eliminates the need for waste assay subsequent to initial packaging and assay associated with D&D activities. It is estimated that $4 million in savings has resulted from the Building 779 D&D program using SWBs in place of 55-gallon drums when disposing of its plutonium-contaminated equipment. Building 779 represents less than 10 percent of the Site's glovebox D&D work. Therefore, the Site has placed a high priority on the purchase and certification of a crate counter capable of accurately assaying SWBs for WIPP.

The mobile SWB counter enables Rocky Flats to meet the stringent standards required for WIPP acceptance. Handling and paperwork associated with certification will be reduced by a ratio of seven to one. In addition, a counter with the ability to assay mixed material-type matrices will allow the Site to relax the rigid waste segregation controls that are now required. Reduced segregation will lower labor and administrative costs.

Conceptual drawing of a Mobile SWB Counter



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For further information about Rocky Flats

*Contact DOE Communication at (303) 966-6088, or Kaiser-Hill Communication at (303) 966-2882, or toll free at (800) 269-0157 (press *82882# when you hear the automated attendant)*

Also, additional information about Rocky Flats is available on the internet at: http://www.rf.doe.gov